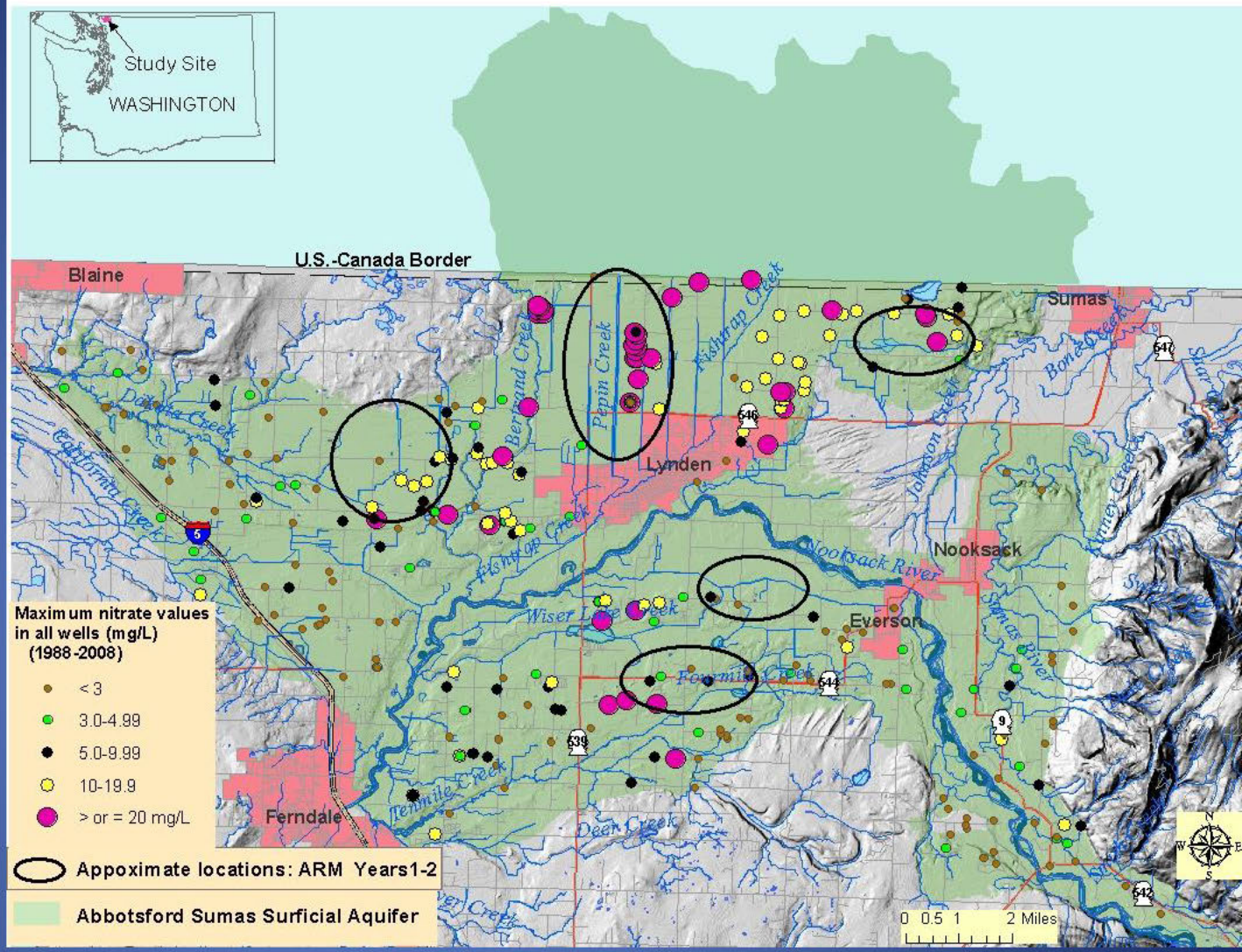
Concerns with ARM Project

- ARM System not developed, no background or testing
- Already highly degraded ground- and surface water quality—similar to Yakima (hi nitrate/intense agriculture)
- Large scale implementation before testing and evaluation of unproven concept
- More robust scientific testing needed before implementation
- Lack of collaboration to ensure water quality protection

Vulnerable Aquifer

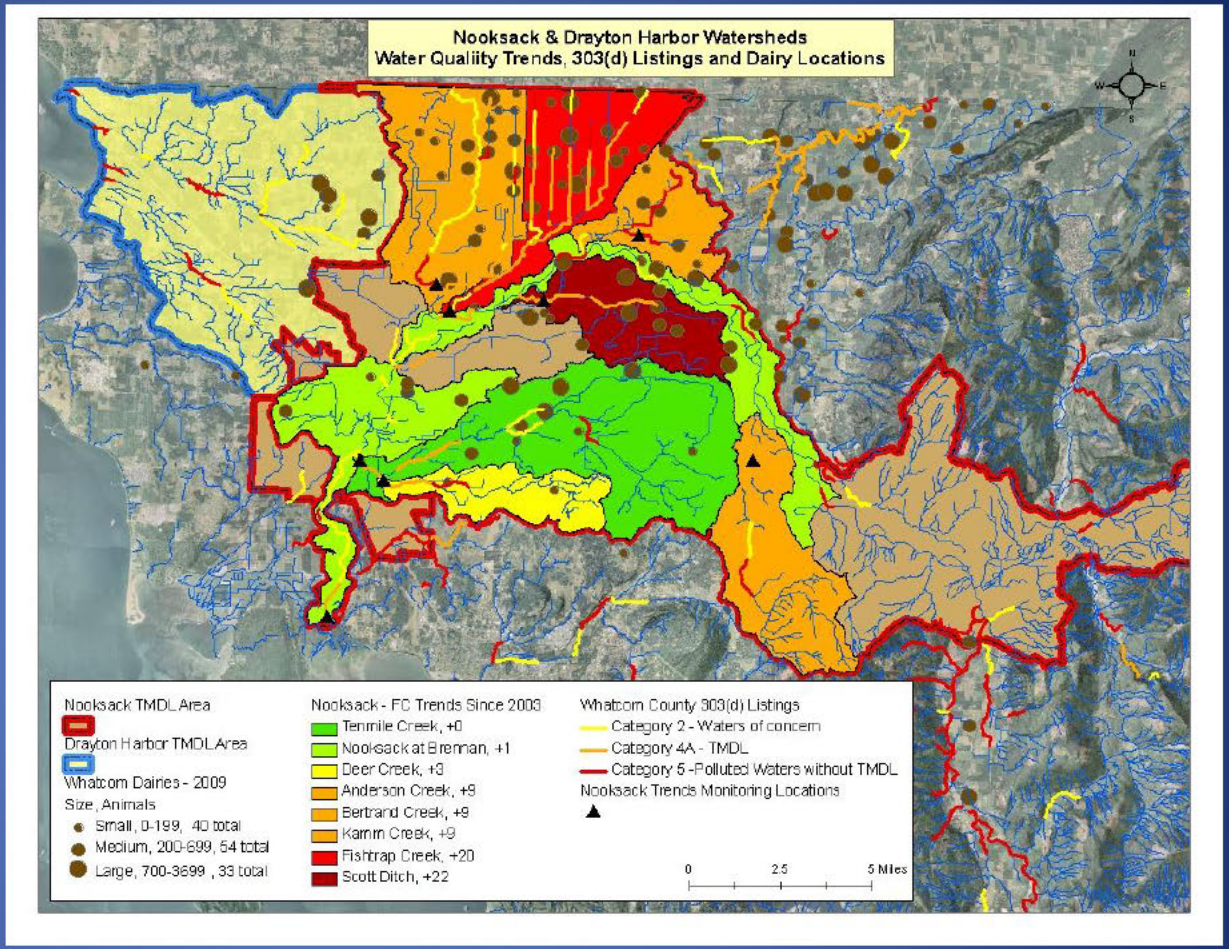
- Less than 10 feet to water
- Thin (25-50 feet thick)
- Sole Source of DW for ~30,000 people
- Heavy Agricultural use
  - 40,000 cows
  - Berries



- Nitrate in wells:
  - 1997---21% over 10 mg/L (250 wells)
  - 2003-2005 --70% over 10 mg/L (35 wells)

Whatcom surface waters severely impacted

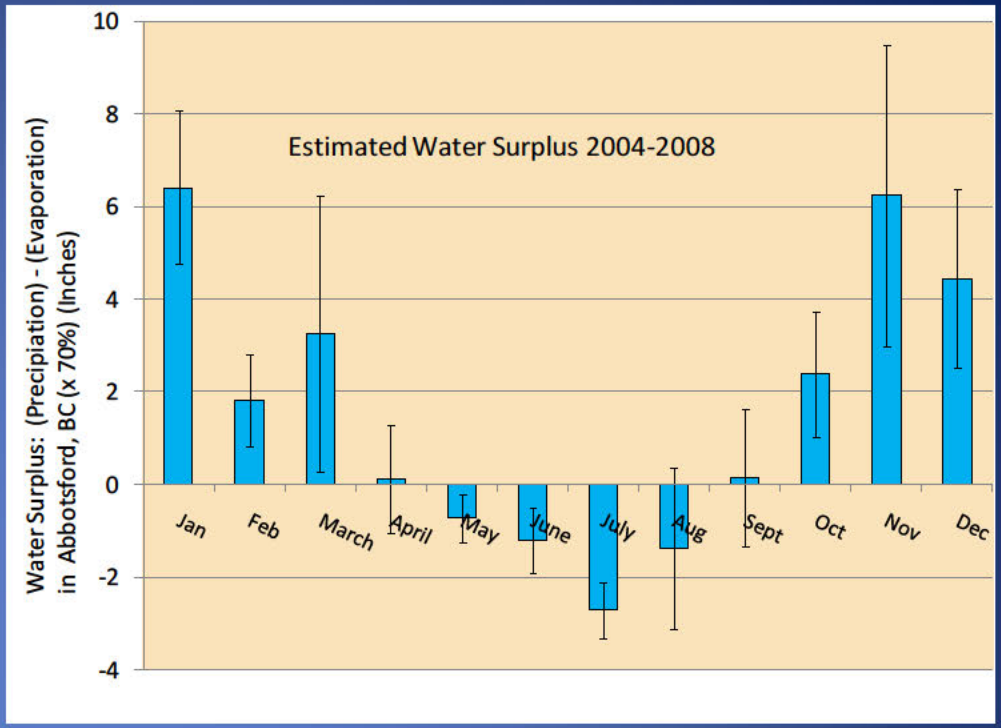
- Over 500 listings
- **Nooksack Listings**
  - Over 200
  - 2nd most in the state
  - WQ was improving after 1998 TMDL
  - FC increase in 7 of 8 sites since 2003
- **Drayton Harbor**
  - Mostly prohibited for shellfish harvest
  - Worst WQ: Nov to Feb
  - TMDL data shows high FC <u>throughout</u> winter months, not just during fall & spring application months

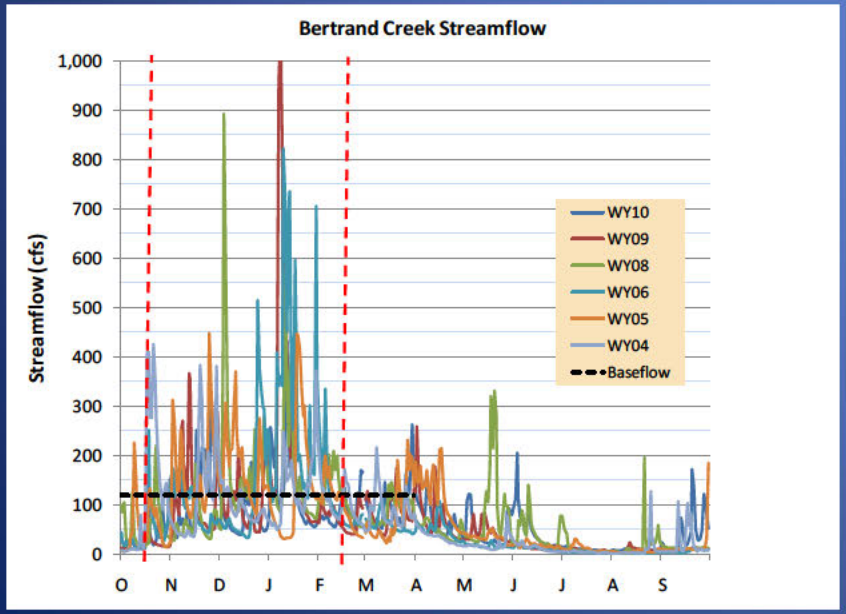


- **Surface water impacts in areas with significant dairy land**
- **<u>Winter manure applications: High risk of bacteria and nutrient loading to surface water</u>**

Local Water Budget

- October-March water surplus, crop growth minimal
- No guarantee crop takes up all nitrate when released





Winter manure= Fecal contamination

- Nov to Jan = most frequent and largest runoff events
- Fecals survive in soil for weeks to months –HIGH concentrations
- Even if manure applied under winter favorable conditions, next runoff carries fecals to SW

Common Ground

- Groundwater, surface water, shellfish areas are contaminated
- Current manure management needs improvement
- Field-specific information is needed to improve nutrient application
- Outreach/training of producers is needed for change

Concerns with ARM

- ARM System not developed, no background or track record
- ARM needs testing, validation on small scale before widespread use
- Water quality already highly degraded (nitrate, fecal coliform)
- Study should be objective, not pre-supposing improvement
- Monitoring critical for evaluating ARM—need careful groundwater and surface water monitoring. Many people are already drinking water above the MCL for nitrate. FC levels getting worse in Nooksack River tributaries.
- Tribes, Ecology and EPA not included in design and testing of ARM model—need to be
- Potential to further degrade drinking water source for people with no alternative source

Suggestions

- Include Ecology, Tribes and EPA in ARM System development and testing
- Test new ARM System concept--pilot scale
  - Groundwater and surface water monitoring
  - Peer review—EPA, Ecology, Tribes
- Evaluate pilot testing before implementation
- Include stakeholders in evaluation and implementation

Beyond ARM—Solutions for Manure Problems

- Water Quality BMP/pollution control manuals with clear expectations for protecting water quality
- Fix Gaps in Dairy Program:
  - Require implementation of NMP plan
  - Require update of NMP plan when significant operation changes (i.e., increased herd size)
- Make next CAFO permit more effective at addressing issues we know exist.
- In TMDL's be clear and specific about the types of pollution control practices that are needed to protect water quality
- Develop strategy for 3rd party manure issues